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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,578	06/07/2001	Ann Chris Irvine	010302	1683

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Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER

LEE, Y YOUNG

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/877,578

Applicant(s)

IRVINE ET AL.

Examiner

Y. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because of the inclusion of an implied phrase such as "described" in line 2. Correction is required. See MPEP § 608.01(b).

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Interframe Encoding Method and Apparatus by Determining the Difference Between Each Quantized Frequency Domain Element".

Claim Objections

4. Claims 1, 14, 15, 28, 41, 42, and 44 are objected to because of the following informalities:

(a) claims 1, 14, 41, and 44, lines 6, 4, 5, and 5, respectively, "the" (first occurrence) should be deleted;

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(b) claims 14, 41, and 44, lines 11, 11-12, and 12-13, respectively, "the" (both occurrences) should be changed to --a--;

(c) claims 15 and 42, lines 3 and 4, respectively, "the" should be deleted; and

(d) claims 28, 41, and 44, lines 4, 3, and 3, respectively, "method" should be changed to --apparatus--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 6, 7, 10-16, 20, 23-29, 33, 34, 37-45, and 48-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Haskell et al (6,005,622).

Haskell et al, in Figures 1-7, discloses a video coder in the same system for encoding digital video as specified in claims 1, 2, 6, 7, 10-16, 20, 23-29, 33, 34, 37-45, and 48-50 of the present invention, the digital video comprising an anchor frame and at least one subsequent frame, the anchor frame and each subsequent frame comprising a plurality of pixel elements, a method of interframe coding, the method comprising: converting the plurality of pixels of the anchor frame and each subsequent frame from pixel domain elements to the frequency domain elements 130, the frequency domain elements capable of being represented as DC elements and AC elements (Fig. 2); quantizing the frequency domain elements 140 to emphasize those elements that are

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more sensitive to the human visual system (e.g. upper left coefficients) and de-emphasize those elements that are less sensitive to the human visual system (e.g. lower right coefficients); and determining the difference 340 between each quantized frequency domain element of the anchor frame 330 and corresponding quantized frequency domain elements of each subsequent frame 140.

With respect to claims 2, 6, 7, 10-16, 20, 23-29, 33, 34, 37-45, and 48-50, Haskell et al also discloses the same apparatus and method for repeating the process of determining the difference between quantized frequency domain elements of successive frames such that quantized frequency domain elements of each frame are compared against quantized frequency domain elements of the frame immediately preceding it (Fig. 3); expressing each frame 2 through N as the difference 340 between quantized frequency domain elements of frames 2 through N and corresponding frequency domain elements of the frames 1 through N-1, respectively; utilizes discrete cosine transforms (DCT); wherein only the difference between AC quantized frequency domain elements 330 is determined; wherein the act of quantizing results in lossy frequency domain elements 140; expressing the subsequent frame as the difference 340 between quantized frequency domain elements of the anchor frame and corresponding frequency domain elements of the subsequent frame; serializing the quantized frequency domain elements (e.g. horizontally/vertically); and variable length coding the serialized quantized frequency domain elements in Huffman codes 160.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3, 8, 17, 21, 30, 35, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haskell et al in view of Lee (5,452,104).

It is noted Haskell et al differs from the present invention in that it fails to particularly disclose DQT and 16 x 16 block sizes as specified in claims 3, 8, 17, 21, 30, 35, and 46. Lee however, in Figure 6, teaches the concept of such well known transform for converting a group of plurality of pixel elements in variable block sizes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, having both the references of Haskell et al and Lee before him/her, to exploit the common transform technique and block sizes as taught by Lee in

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the system of Haskell et al in order to provide a novel and improved method and system for compressing image data for transmission and for reconstruction of the image data upon reception.

10. Claims 4, 5, 9, 18, 19, 22, 31, 32, 36, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haskell et al.

It is also noted Haskell et al differs from the present invention in that it fails to particularly disclose using a frequency weighted mask, a quantization step function, and lossless quantization. However, Examiner takes Official Notice that such features are notoriously well known in the compression art.

Therefore, it is considered obvious to one of ordinary skill in the art that such common compression techniques may be easily exploited merely to provide an efficient compression scheme with decreased distortions.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nishi and Nishi et al disclose image processing method, image processing apparatus and data recording medium.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. Lee whose telephone number is (703) 308-7584.

The examiner can normally be reached on (703) 308-7584.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Y. Lee
Primary Examiner
Art Unit 2613

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